

## CHROMOSOME NUMBERS OF PHANEROGAMS. 5.<sup>1</sup>

Chromosome numbers of phanerogams are reported below together with voucher data and herbaria where collections are deposited. Unless indicated otherwise the chromosome records are based on the study of one plant. Haploid counts are from pollen mother cells, and diploid counts are from root tips unless otherwise indicated.

The authors responsible for counts are listed alphabetically. Citation should have the form: Doe, J. 1974. *In* Chromosome numbers of phanerogams. 4. Ann. Missouri Bot. Gard. 61: .

Counts by PETER GOLDBLATT, Missouri Botanical Garden.

### AMARYLLIDACEAE

*Ixiolirion tataricum* (Pall.) Herb.  $2n = 24$ . IRAN. Chalus Pass near Kandevan tunnel, *Goldblatt 705B* (MO).

### EUPOMATIACEAE

*Eupomatia laurina* R. Br.  $2n = 20$ . NEW GUINEA. Busu R. near Lae, *Womersley s.n.* (NGF).

### IRIDACEAE

*Iris barnumae* M. Foster & Bak.  $2n = 20$ . IRAN. Hills between Khoy and Shahpur, *Goldblatt 1243* (MO).

*Anomalesia saccata* (Klatt) Goldbl.  $2n = 30$ . SOUTH AFRICA. South of Bitterfontein, Namaqualand, *Goldblatt 1244* (BOL).

*Gladiolus lapeirousioides* Goldbl.  $2n = 30$ . SOUTH AFRICA. Kliprand-Loeriesfontein road. *Goldblatt 540* (BOL, NBG, PRE).

### LEGUMINOSAE

*Sophora gypsophila* Turner & Powell var. *gypsophila*.  $2n = 18$ . MEXICO. Chihuahua (from the type locality) *Powell 2537* (MO).

### LILIACEAE

*Allium cf. stamineum* Boiss.  $2n = 16$ . IRAN. Near Qotur at Turkish border, *Goldblatt 760* (MO).

*Allium synthamanthum* C. Koch.  $2n = 16$ . IRAN. Between Khoy and Qotur, *Goldblatt 764* (MO).

*Allium scotostemon* Wendelbo.  $2n = 16$ . IRAN. Chalus Pass, 6 miles N Kandevan tunnel, *Goldblatt 705* (MO).

*Allium* sp.  $2n = 16$ . IRAN. Near Qotur, at Turkish border, *Goldblatt 760* (MO).

*Merendera trigyna* (Adams) Woron.  $2n = \text{ca. } 20$ . IRAN. North of Firuzkuh at entrance to pass, *Goldblatt 839A* (MO).

*Muscari commosum* Miller.  $2n = 18$ . IRAN. About 12 km south of Siah Cheshmeh, *Goldblatt 775* (MO).

<sup>1</sup>The previous number in this series appeared in Ann. Missouri Bot. Gard. 57: 382-384. 1970.

*Muscari tenuiflorum* Taush.  $2n = 18$ . IRAN. Near Polour, *Goldblatt 1241* (MO).

## PAPAVERACEAE

*Glaucium oxylobum* Boiss.  $n = 6$ . IRAN. Abandoned fields near Rudhen, *Goldblatt 702* (MO).

*Papaver chelidoniifolium* Boiss. & Buhse.  $2n = 14$ . IRAN. Forest near Masuleh, south of Fowmen, *Goldblatt 728* (MO).

## SAXIFRAGACEAE

*Astilbe papuana* Schl.  $2n = 14$ . NEW GUINEA. Near Mt. Hagen, *Womersley s.n.* (NGF).

Counts by John C. Semple, Missouri Botanical Garden.

Seedlings were grown at either the Missouri Botanical Garden, Washington University, or the University of Missouri-St. Louis.

## ROSACEAE

*Cercocarpus montanus* Raf.  $2n = 18$ . COLORADO. PARK CO. NE of Bailey, 26 Nov. 1972, *J. & K. Semple 796* (MO).—Seedling root tips.

## SAPINDACEAE

*Paulinnia turbacensis* H.B.K.  $2n = 24$ . PANAMA. CANAL ZONE. Secondary forest near Boy Scout Road, 3 April 1971, *Semple 497* (MO).—Two plants. Seedling root tips.

## COMBRETACEAE

*Conocarpus erectus* L.  $2n = 24$ . Seedling root tips. GALAPAGOS ISLANDS.

## CONVOLVULACEAE

*Ipomoea sinuata* Ort.  $2n = 30$ . TEXAS. KLEBERG CO. E of Kingsville, 13 June 1971, *Semple 592* (MO).—Seedling root tips.

## SOLANACEAE

*Solanum bahmense* L. var. *luxurians* D'Arcy.  $2n = 24$ . FLORIDA. MONROE CO. Key Largo, *Austin 4364* (MO).—Adventitious root tips from cutting of seedling.

*Solanum drymophyllum* O. E. Shulz.  $2n = 24$ . PUERTO RICO. Central Mountains, Aug. 1967, *D'Arcy 1712* (MO, FLAS).—Adventitious root tips from cutting of seedling.

*Solanum persicifolium* Dun.  $2n = 24$ . VIRGIN ISLANDS. TORTULA; Sept. 1967, *D'Arcy 2053* (FLAS).—Adventitious root tips from cutting of seedling.

## COMPOSITAE

*Bradburia hirtella* T. & G.  $n = 3_{II}$ . TEXAS. FAYETTE CO. 0.5 miles S of junction of US 77 and Farm Road 153, 10 July 1970, *Lewis 7658* (MO). LEE CO. Giddings, 3.1 miles SW on US 77, 10 July 1970, *Lewis 7661* (MO).

*Elephantopus carolinianus* Raeusch.  $2n = 22$ . MISSOURI. FRANKLIN CO. Gray Summit, Arboretum, 3 Oct. 1972, *Shea 310* (MO).—Seedling root tips.

*Grindelia lanceolata* Nutt.  $2n = 12$ . OKLAHOMA. OSAGE CO. 7.6 miles N of Schilder, 21 Sept. 1973, J. & K. Semple 911 (MO).—Seedling root tips.

*Heterotheca latifolia* Buckl.  $n = 9_{II}$ . ARKANSAS. SEBASTIAN CO. Ft. Smith, IS-540 and Grand Ave., 22 Sept. 1973, J. & K. Semple 925 (MO).

*Heterotheca pilosa* (Nutt.) Shinnars.  $n = 4_{II}$ . TEXAS. DEWITT CO. 11 miles S of Cuero, 10 July 1970, Lewis 7657 (MO).

*Macheranthera scabrella* (Greene) Shinnars.  $n = 4_{II}$  and  $n = 3_{II} + 2_I$ . TEXAS. PRESIDIO CO. 13 miles SE of Redford on Hwy. 170, "Closed Canyon," Averett 503B (TEX).—Buds from cultivated plants.

*Macheranthera blephariphylla* (Gray) Shinnars.  $n = 4_{II}$ . TEXAS. PRESIDIO CO. 13 miles SE of Redford on Hwy. 170, "Closed Canyon," Averett 502 (TEX).—Buds from cultivated plant.

*Prionopsis ciliata* (Nutt.) Nutt. (Syn. *Haplopappus ciliatus* Nutt.).  $n = 6_{II}$ . KANSAS. BUTLER CO. US 77, 3 miles N of Kansas 96, 21 Sept. 1973, J. & K. Semple 905 (MO).  $2n = 12$ . KANSAS. BUTLER CO. El Dorado, 0.5 mile E of Kansas Turnpike, 21 Sept. 1973, J. & K. Semple 904 (MO).—Seedling root tips. COWLEY CO. Kansas Hwy. 15, 2.7 miles N of Oklahoma state line, 21 Sept. 1973, J. & K. Semple 910 (MO).—Seedling root tips. OKLAHOMA. OSAGE CO. 1.0 mile N of Salt Creek on Oklahoma Hwy. 18 (S of Fairfax), 21 Sept. 1973, J. & K. Semple 918 (MO).—Seedling root tips.

*Spiracantha cornifolia* H.B.K.  $2n = 16$ . PANAMA. CANAL ZONE. Summit Garden, 3 April 1971, Semple 635 (MO).—Seedling root tips.

Counts by F. H. UTECH, Missouri Botanical Garden.

#### LILIACEAE

*Polygonatum pubescens* (Willd.) Pursh.  $2n = 20$  and  $n = 10$ . TENNESSEE. SEVIER CO.: Great Smoky Mountains National Park, Laurel Run, 1.5 miles NNE of Cades Cove, elev. 2000 ft., 27 April 1972, Utech 25 (MO).  $2n = 20$ . VIRGINIA. SMYTH CO.: Jefferson National Forest, N slope of Mt. Rogers, 15 miles ENE of Damascus on US Hwy. 58, elev. 3800 ft., 5 May 1972, Utech 81 (MO). PAGE CO.: Shenandoah National Park, Skyland Area, Stony Man Cliffs, mile 41.5 of Skyline Drive, elev. 3000 ft., 12 May 1972, Utech 121 (MO).

*Maianthemum canadense* Desf.  $2n = 36$ . MASSACHUSETTS. BERKSHIRE CO.: N slope of Mt. Greylock, 7 miles SW of North Adams, elev. 2900 ft., 4 June 1972, Utech 281 (MO). QUEBEC. GASPE-EST: Mont-Ste.-Anne, 1.0 mile W of Perce, elev. 800 ft., 13 June 1972, Utech 311 (MO). Mt. Albert, 28 miles SSW of Ste.-Anne-des-Monts on Hwy 299, elev. 2500 ft., 16 June 1972, Utech 331 (MO). NEW JERSEY. SUSSEX CO.: High Point State Park, Saw Mill Road, elev. 1000 ft., 16 May 1972, Utech 131 (MO).  $2n = 36$  and  $n = 18$ . NORTH CAROLINA. AVERY CO.: SSW slope of Grandfather Mountain, 1.0 mile NE from Linville on US Hwy 221, 4 May 1972, Utech 71.

*Maianthemum dilatatum* (Wood) Nels & Macbr.  $2n = 36$ . CALIFORNIA. HUMBOLDT CO.: Redwood forest on campus of Humboldt State University, Arcata, elev. 650 ft., 30 July 1972, Utech 6101 (MO). OREGON. BENTON CO.: Siuslaw National Forest, Mary's Peak, 25 miles WSW of Corvallis on Ore. Hwy 34. elev.

3500 ft., 8 August 1972, *Utech 5101* (MO). WASHINGTON. CLALLAM CO.: Olympia National Forest, Hurricane Ridge, 6 miles SSW of Port Angeles, elev. 1800 ft., 16 August 1972, *Utech 5161*.

*Smilacina racemosa* (L.) Desf.  $2n = 36$ . OREGON. LINN CO.: Willamette National Forest, Lost Prairie, South Santiam Hwy, 25 miles E of Cascadia, elev. 3300 ft., 7 August 1972, *Utech 5091* (MO). CLATSOP CO.: Saddle Mountain State Park, 6 miles N of Necanicum, 6 miles N of US Hwy 26, elev. 1500 ft., 9 August 1972, *Utech 5112* (MO). WASHINGTON. CHELAN CO.: Wenatchee National Forest, White Pine, 21 miles NW of Leavenworth, elev. 1800 ft., *Utech 5191* (MO).

*Smilacina stellata* (L.) Desf.  $2n = 36$  and  $n = 18$ . QUEBEC. GASPE-EST: Mont-St.-Anne, 1.0 mile W of Perce, elev. 800 ft., 13 June 1972, *Utech 312* (MO).  $2n = 36$ . GASPE-OUEST: Mont-St.-Pierre, 1.0 miles E of city, elev. 1000 ft., 15 June 1972, *Utech 322* (MO).

*Streptopus amplexifolius* (L.) DC.  $2n = 32$ . OREGON. JACKSON CO.: Winema National Forest, Aspen Point, Lake of the Woods, 35 miles NW of Klamath Falls, elev. 4600 ft., 4 August 1972, *Utech 5021* (MO). CLATSOP CO.: Saddle Mountain State Park, 6 miles N of Necanicum, 6 miles N of US Hwy 26, elev. 1800 ft., 9 August 1972, *Utech 5111* (MO).

*Streptopus roseus* Michx.  $2n = 16$ . TENNESSEE. SEVIER CO.: Great Smoky Mountains National Park, Laurel Run, 1.5 miles NNE of Cades Cove, elev. 2000 ft., 27 April 1972, *Utech 24* (MO). NORTH CAROLINA. SWAIN CO.: Great Smoky Mountain National Park, 2.0 miles S of Newfound Gap, elev. 4400 ft., 28 April 1972, *Utech 33* (MO). PENNSYLVANIA. MONROE CO.: Tannersville Bog on Cranberry Road, elev. 1200 ft., 16 May 1972, *Utech 135* (MO).

## A NEW *SPHAGNUM* FROM HIGH ALTITUDE COSTA RICA

### *Sphagnum sancto-josephense* Crum & Crosby, sp. nov.

Planta  $\pm$  tenera, mollis, pallens. Epidermis caulina stratis 2 composita, a cylindro lignoso distincte diversa. Folia caulina ca. 1.4 mm longa, oblongo-ovata, acuta, ad apicem dorso superficie fibrosa; limbus deorsum non dilatatus. Folia ramulina 1.7–1.8 mm longa, anguste lanceolata, madida concava, sicca  $\pm$  plana et valde undulata, fibrosa, dorso superficie pori pauci (2–3) et parvi, in angulis, atque interiore superficie pori multi (4–11),  $\pm$  magni, rotundi; cellulae chlorophylliferae sectione transversali triangulae, interiore folii superficie inclusae.

*Plants* rather slender, in soft, loose, pale, yellowish-green tufts; terminal bud not noticeably differentiated; young pendent branches not in pairs. *Stems* yellowish; cortical cells moderately enlarged, thin-walled, in 2 layers, elongate-rectangular (3–4:1) in surface view, without pores or fibrils; wood cylinder yellowish.

---

→

FIGURES 1–14. *Sphagnum sancto-josephense*.—1. Habit, dry,  $\times 1$ .—2. Fascicle, dry,  $\times 3$ .—3. Stem in cross-section,  $\times 117$ .—4. Stem cortex in surface view,  $\times 117$ .—5. Stem leaves, wet,  $\times 27$ .—6. Cells of stem leaf at middle of apical portion, outer surface,  $\times 400$ .—7. Cells of stem leaf at middle of apical portion, inner surface,  $\times 400$ .—8. Branch in cross-